WHITE CLOUD

—ELECTRONIC CIGARETTES—

Lead by Sales, LLC d/b/a White Cloud Cigarettes

June 17th 2015

**Comment Submitted in Response to FDA Regarding Proposed Rule
Deeming Tobacco Products to be Subject to the Federal Food, Drug, and Cosmetic Act, as
Amended by the Family Smoking Prevention and Tobacco Control Act; Regulations on the
Sale and Distribution of Tobacco Products and Required Warning Statements for
Tobacco Products
Docket ID: FDA-2014-N-1936-0003**

On behalf of White Cloud Electronic Cigarettes, I would like to utilize this written submission as an attempt to address some of the questions raised by the FDA in its recent workshops and Listening Sessions, in relation to the development of the Deeming Regulations for electronic cigarettes. The submission itself represents recently conducted primary, qualitative research in to the behavioral characteristics of both smokers of combustible tobacco products and those users of electronic cigarettes (e-cigs) and the perceived barriers faced/overcome in moving towards potentially safer alternatives to smoking.

The research is contained in two parts consisting of both Focus Group and one-on-one interview-based primary qualitative research, carried out by faculty from the University of South Florida (USF) co-funded via an unrestricted grant from White Cloud Electronic Cigarettes. The research was carried out and evaluated during 2014, with the final write-up completed in February 2015.

In presenting this research and its findings, I am in no way representing USF, its faculty or student body.

Yours sincerely,

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Traditional tobacco cigarette smoker perceptions of electronic cigarettes and perceived barriers to switching from traditional tobacco cigarettes to electronic cigarettes:

A Qualitative Study

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IN-DEPTH INTERVIEW RESEARCH

Objective:
The objective of this phase of the research was to gain further insights into the smoking and/or vaping related behaviors of different sub-groups of e-cigarette users. The intention is that these insights may shed more light on the perceived barriers faced by smokers as they consider transitioning to the use of the potentially safer alternative of electronic cigarettes (e-cigs).

Method:
Following on from Focus Group research (contained within Appendix B), a series of in-depth interviews were carried out. For these in-depth interviews, a market research firm, that had already established a consumer panel of smokers across different regions of the United States, was used to recruit 50 respondents who met criteria specified by the research team (see criteria below). The respondents were paid for their participation in a 20-minute one-on-one interview in mid-November, 2014. The interviews were conducted by two trained graduate marketing students from the University of South Florida, both of whom had prior background in market research, and were overseen by members of the Marketing Faculty.

Recruitment and sample:
A random sample of 50 smokers and/or vapers, who met the criteria specified below, were selected from a consumer panel maintained by an established market research firm familiar with conducting research in the area of tobacco. The criteria were as follows:

- Equal number of females and males
- 24 dual users of traditional cigarettes and electronic cigarettes
- 10 ever tried users (those who have tried electronic cigarettes but have not used one in the last 30 days) and
- 16 electronic cigarette only users

Fewer numbers of "e-cig only" users were recruited, compared to "dual users", as the e-cig only users had already made the transition from traditional cigarettes to e-cigs and were less likely to be dealing with transitional barriers at this stage. The previous focus group research (App' B) had revealed that "ever tried" users had most often rejected e-cigs because the product did not meet their expectations in terms of satisfying their craving, reducing their anxiety or providing them with the same feeling they received from smoking tobacco cigarettes. This group was also not motivated enough to invest the time and effort in to finding the "right" e-cig product to help them transition from conventional tobacco cigarettes to electronic cigarettes. Hence, fewer members of this group were sampled and more were recruited from the dual user group – i.e. a group that was in the process of making the transition from tobacco to electronic cigarettes (most dual users mentioned in the focus groups that they had a desire to quit tobacco cigarettes completely) and therefore more likely to be currently dealing with barriers to transition from conventional to electronic cigarettes.
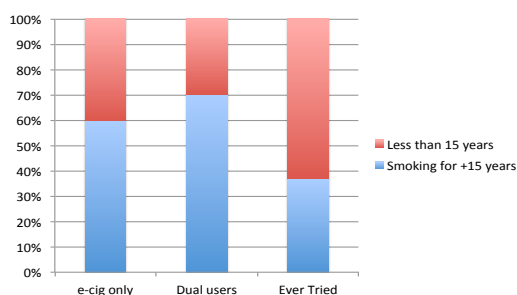
Data collection:
For the purpose of the one-to-one interviews, the market research firm recruited a group of individuals meeting the criteria mentioned above. All the interviews were conducted within a

four-day period in mid-November, 2014. USF's Institutional Review Board (IRB) approved the study. Accordingly, the respondents were informed about their rights as participants in this study and other information about the project was shared with them as specified by USF's IRB.
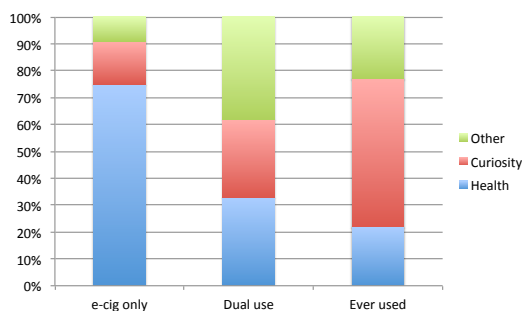
The interviewers took detailed notes during the interview. These separate sets of notes were later reviewed by two different researchers to check for reliability in the interpretation of the transcribed notes. When the researchers differed in their interpretation, the differences were resolved by reverting to the interviewers for clarification followed by a discussion amongst the research team.

Data analysis and results:

The sample of smokers and vapers in this particular study had been smokers for varying lengths of time with nearly 60% of the sample having smoked for over 15 years. Additionally, 7% had smoked for 10-15 years, 22% had smoked for 6-10 years and the remainder had smoked for less than 6 years. It was interesting to note that the percentage of smokers who had smoked tobacco cigarettes for 15 years or longer was greater in the "e-cig only" and "dual user" group than the "ever tried" group. The longer tenure smokers (greater than 15 years) were nearly 60% of the "e-cigs only" group and 70% of the "dual user" group, while they only represented approximately 37% of the "ever tried" group.

Motivation to use electronic cigarettes:

The interviews revealed that, across the three groups, the respondents did not differ much in terms of whether they started using e-cigs because they were urged to do so by others (e.g., spouse, girlfriend, or boyfriend, etc.) or that they wanted to do it for themselves. Among the "e-

cig only" users, 9% said that they were urged by others to start using e-cigs, while the corresponding numbers were 18% among the "dual users" and 20% among the "ever tried" users. However, when the respondents who chose to use e-cigs on their own were probed further as to their motivation for wanting to use e-cigs, considerable differences emerged between the three groups:

Among e-cig only users, 75% said their motivation to use e-cigs was for health reasons; i.e. they wanted to quit smoking tobacco cigarettes because they were concerned about their health. Curiosity to see what an e-cig tasted or felt like had been the motivation for 16% of "e-cig only" users to move away from tobacco products.

Among the "dual users", 33% were motivated to use e-cigs by a desire to have a healthier life, 29% were driven by curiosity, and the rest of the "dual users" were evenly split between the convenience factor (ability to smoke indoors, etc.) and a concern for family members, such as welfare of their children, odorless clothes, smoke-free cars, etc.

For the "ever tried" user group, curiosity was the most common motivator stated by 55% of the respondents, while 22% of the "ever tried" users were driven by health concerns to try e-cigs. The rest of the members of this group were motivated to use e-cigs by the convenience factor.

Intention to quit smoking tobacco cigarettes and electronic cigarettes
While the "e-cig only" users had already quit smoking tobacco cigarettes completely, 96% of the "dual users" also indicated that they intended to quit smoking tobacco cigarettes. However, when asked about their intent to quit smoking e-cigs, half of the "e-cig only" users said they would not quit using e-cigs as they found them satisfying and felt that they were healthier than smoking tobacco cigarettes. In contrast, the "dual users" overwhelmingly said that they intended to quit smoking both tobacco cigarettes and electronic cigarettes "eventually".

Among the "ever tried" users, 22% said that they intended to quit tobacco cigarettes, while another 22% said they felt they had not achieved the right mindset to quit smoking. On further probing, this was found to be respondents' way of saying they had not made a serious commitment to quitting smoking conventional tobacco cigarettes.

Amount of tobacco and nicotine consumption
Among the "dual users", two-thirds of the respondents indicated that they were smoking fewer tobacco cigarettes after they started using electronic cigarettes, while one-third felt there was no reduction in their tobacco consumption. Remarkably, 81% of those who indicated that the quantity of tobacco cigarettes they smoked had gone down also stated that this represented a "dramatic reduction" in their cigarette consumption, while the rest (19%) stated that their consumption had gone down "slightly".

Those who indicated that their tobacco cigarette consumption had gone down considerably provided numerical details of the number of cigarettes smoked to illustrate their point that e-cig usage had helped them reduce their smoking of tobacco cigarettes. In some cases, the reduction was a 50% reduction in the number of cigarettes usually smoked, while in other examples, the reduction in cigarettes smoked was even greater.

Additionally, dual users' motivation to use e-cigarettes was cross-tabulated with the amount of tobacco cigarettes they smoked. The results indicated that all "dual users", who were motivated

by health concerns, were smoking less tobacco cigarettes, whilst 88% of them were smoking significantly less. This was in sharp contrast to the 43% of the curiosity-driven dual users who said they smoked less after adopting e-cig usage. In other words, 57% of the curiosity-driven dual users had not reduced the amount of tobacco cigarettes smoked, while 100% of those driven by health concerns had reduced their tobacco cigarette consumption. Clearly, motivation plays an important role, when transitioning to electronic cigarettes, in determining whether one is likely to reduce the consumption of tobacco cigarettes.

When the e-cig only users were asked about how long it took for them to transition from tobacco cigarettes to e-cigs, their responses varied from zero days (immediate transition from tobacco cigarettes to e-cigs) to six months. Those who were motivated by health concerns seemed to have a shorter transition period compared to those who were motivated by curiosity and then went on to transition to e-cigarettes. There was no observed relationship between how long a person had smoked tobacco cigarettes and their transition period. It is also worth noting that even those smokers who had initially been motivated by curiosity to try e-cigs had been successful in transitioning to e-cigs only.

Smokers' perceptions of flavors
There are two aspects of flavors that were attempted to explore in this research. First, the research sought to determine smokers' perceptions of flavors and, if they liked the flavors, which flavors did they like. In addition, the research also tried to get a sense as to whether smokers felt it was important to have e-cigs available in different flavors and whether they would have transitioned from tobacco cigarettes to e-cigs in the absence of flavors. While both questions were straightforward for respondents to answer, the responses to the first question were easier to interpret, while the interpretation of the responses to the second question were more nuanced. Two-thirds of the "e-cig only" users enjoyed having flavors and the flavors they liked included cappuccino, cherry, butterscotch, and fruity ones. Tobacco and menthol flavors were favored by about 40% of the "e-cig only" users. On further probing regarding the role of flavors in helping them to transition to electronic cigarettes, half of the "e-cig only" users felt that it was very important, but that they would have "probably" transitioned even if the product were not available in different flavors. However, it appeared that this was a nuanced interpretation because some respondents were speculating about their behavior in the absence of flavors even though they were currently using flavored e-cigarettes. A conservative interpretation would be that among "e-cig only" users, there is a large segment that finds the flavors to be extremely helpful in transitioning from tobacco to electronic cigarettes. It is also fair to state that there exists another fairly large segment for whom flavors were not a factor in transitioning to e-cigs. In fact, comments made by members of this segment suggested that they felt anything other than a tobacco or menthol flavor might hinder their initial transition to e-cig adoption as they were looking for products that replicated their current tobacco experience.

Among "dual users", we found a majority (55%) disliked the flavors and felt it was not important in helping them switch from tobacco to electronic cigarettes. While there was a sizable segment (35%) of "dual users" who felt that flavors were important in helping them transition to e-cig usage, it was interesting to note that two-thirds of those who felt flavor was important wanted e-cigs to be available in regular tobacco or menthol flavor. The responses from this group reinforced a point made earlier with the "e-cig only" user group around two different aspects of

flavors: a) the importance of smokers getting the right flavor that works for them as they transition from tobacco cigarettes to e-cigs and b) the specific flavors themselves. The two are different issues though it seems the public debate focuses on the second issue and running the risk of unintentionally undermining the importance of the first issue.

Among the "ever tried" users, flavor did not seem to make a difference for almost all respondents.

Discussion:

The in-depth interviews confirmed many of the insights uncovered in the focus groups held earlier in the project research. One key finding was that health concerns were a big motivator for tobacco cigarette smokers to consider switching to use of electronic cigarettes. As in the focus groups, the research again found differences between sub-groups of smokers and/or vapers in terms of the motivating factors that made them consider adoption of e-cigs. However, the specific factors identified as differences between the "e-cigs only" group and the "dual user" group in the focus group stage was not the same as the factors identified in the in-depth interview stage. The focus groups had revealed that in addition to health concerns, "dual users" were also driven by socialization needs. The one-to-one interviews revealed that the "dual user" group was driven by health concerns and also by curiosity. Some "dual users" in the interviews mentioned the convenience of vaping in places where smoking tobacco cigarettes is disallowed. Among the "ever tried" users who were interviewed, curiosity was mentioned most often as the motivator to try e-cigs while the "ever tried" users in the focus groups cited convenience most often.

A consistent finding across the different methods of qualitative research was that smokers of tobacco cigarettes, who had become e-cig only users, had been motivated to switch to e-cigs primarily by health concerns, while the "dual user" group included tobacco cigarette smokers who had been motivated by health concerns and also some who had been motivated by non-health related factor such as curiosity or convenience. The "ever tried" user group had the smallest proportion of tobacco cigarette smokers who were motivated by health concerns to try e-cigs.

It was interesting to note that, regardless of what motivated dual users to transition to e-cig usage, almost all of them intended to quit smoking tobacco cigarettes in favor of using e-cigs. Surprisingly, only half of the "e-cig only" users said they planned to quit using electronic cigarettes. The interviews also revealed that a majority of dual users reduced their smoking of tobacco cigarettes considerably (e.g., cutting down the quantity smoked by 50% or more). Further, the research showed that dual users motivated by health concerns typically cut down their smoking of tobacco cigarettes considerably while only half of the dual users driven by other factors had reduced their smoking of tobacco cigarettes.

The interviews also revealed that there was a fairly sizable segment of e-cig users who liked electronic cigarettes being available in different flavors. The research also found differences between "e-cig only" users and "dual users" with respect to their reaction towards flavors. Flavors were viewed favorably by a larger proportion of "e-cig only" users (66%) compared to "dual users" (35%). There were a variety of flavors that were sought by vapers including flavors such as vanilla, cherry, butterscotch, etc. However, the most common flavors mentioned were tobacco and menthol; especially by the "e-cig only" users in their initial stages of transition from tobacco products, before moving on to other flavors.

Conclusion from qualitative research
The two different qualitative research methodologies used in this research study revealed that there were differences between the various sub-groups of e-cig users. While the research has identified several barriers that hinder smokers of tobacco cigarettes transitioning to electronic cigarette usage, the differences across sub-groups such as "e-cig only" users vs. "dual users" points to the importance of validating the qualitative research findings with a larger scale quantitative survey that allows statistical testing of differences across groups. A quantitative study can also be used to test the impact of certain factors after controlling for other factors and thus allowing for a better sense of the relative role of the various factors identified in the qualitative research described in this report.

APPENDIX A

In-depth Interview guidelines for interviewers
(The questions below can serve as "leading questions" that can be used to explore issues in greater detail)

The interviewer will inform the participant about the research and their rights as a research participant including their rights to withdraw from the study at any time. The informed consent statement will be slowly read out to the participant with pauses in between to find out if they have any questions about the research. (Please note that the participants would have already received a copy of the Informed Consent Statement at the time they were recruited and agreed to participate in the study).

General Questions:
1) How would you describe your smoking habits?
a) How long?
b) How frequent?
c) How soon after waking up do you have your first cigarette?
d) Would you say you have smoked over 100 cigarettes in your lifetime?

2) Have you heard of e-cigarettes/electronic cigarettes/ or e-cigs?
a) If so, when did you first become aware of them?

3) What is your opinion about e-cigarettes?
a) In your view, what are some benefits?
b) In your view, what are some drawbacks?

4) Have you tried an e-cigarette? If so,
a) When did you first try it?
b) What was your initial reaction to it?
c) Describe that experience (what device you used, how it felt, was it flavored?)
d) What motivated you to try it?
e) How often do you use them?
f) Have you purchased one in the past 30 days?
g) Do you still smoke conventional cigarettes? How much?

Category-specific Questions:
For smokers who have not tried e-cigarettes:
a) Have you ever considered using e-cigarettes? If yes, then were there any particular reasons that stopped you from using it?
b) Are you planning to quit smoking? Have you tried quitting before?

For smokers who ever tried e-cigarettes, but did not adopt:
a) Why don't' you use e-cigarettes?
b) Would you have switched if the e-cig was/wasn't flavored?
c) How long did you stay in the trial phase?
d) Do you intend on quitting smoking? Have you tried quitting before?

For dual users:
a)   Why do you use both products?
b)   What device do you use? (e.g. mods, disposable, flavored, etc.) Why?
c)   What was the role of flavors in getting you to try e-cigs? Would you have adopted or tried them if they were / were not flavored?
d)   Are you smoking less? If so, how much?
e)   How much has your overall nicotine consumption changed? More/less?
f)   Do you intend on eventually quitting either one?
g)   If so, do you expect to succeed in quitting tobacco/nicotine?

For exclusive e-cigarette users:
a)   Why did you try e-cigarettes initially?
b)   How long did it take you to quit tobacco?
c)   Would you have switched if the e-cig was/wasn't flavored?
d)   Were you using both products at some point? How long did that last?
e)   What device do you use? Why?
f)   Have you used other devices previously? If so, why did you switch?
g)   Are you planning on reducing/quitting e-cigarettes?
h)   If so, do you expect to succeed in doing so?

Appendix B
Manuscript from the Focus Group Research, prepared for submission to an appropriate journal

Abstract

Background: The electronic cigarette (e-cig) industry is growing very rapidly.[1-2] This growth is fueled by a combination of smokers of traditional cigarettes trying e-cigs and, at the same time, new products entering the market. There is a need to regularly assess user perceptions, fears, and the concerns of consumers in such a dynamic market. Few studies have employed qualitative methods to gain insight into different types of e-cig users, such as "dual users" of tobacco cigarettes and e-cigs, exclusive e-cig users, and those who have tried e-cigs, but do not use them currently, and have perhaps returned to smoking traditional tobacco cigarettes. This qualitative study gains insight from these groups concerning their perceptions of e-cigs and the barriers to switch from tobacco cigarettes to e-cigs.

Methods: Thirty participants were recruited by specialist market research firm L&E Research to participate in three focus groups. The sample was drawn from a population of smokers and not limited to members belonging to groups that are actively engaged in discussing e-cig related issues, such as e-cig forums.

Results: The primary motivation given for tobacco cigarette smokers to switch to e-cigs was to become healthier. There were also several other reasons, such as a desire to avoid smelling bad, the ability to maintain the ritual of holding a cigarette between the fingers and simulating the puffing process, fitting in with friends and co-workers in social settings, and lower costs. A highlighted potential barrier for traditional cigarette smokers to switch to e-cigs was the variance in product quality, which made it difficult for a new e-cig smoker to find a product that was satisfactory. The time and effort needed to find a suitable e-cig that provided a satisfactory experience and an appropriate range of flavors was considerable. The initial "taste" and "throat hit" experienced during first e-cig usage/trial did not meet the expectations for many users who anticipated replicating the tobacco cigarette experience. Users also expressed a desire to know the ingredients in their e-cigs and felt manufacturers should be required to provide that information proactively. There was also general agreement that products should be regulated, but not to the extent that it limits access to products and flavors.

Conclusions: e-cig users perceive considerable variance in product quality in the market place. They want more reliable information about the product ingredients and information that can help them enhance the product experience. There are differences between different types of e-cig users in terms of their motivation to use and perceived barriers to use the product. Insight from this research also points to the need for future research to include e-cig users from a broader population.

Introduction

The global electronic cigarettes (e-cigs) market has grown rapidly since the product was first introduced in China in 2004. In the U.S. alone, e-cig industry sales were projected to reach $2.2 billion at the end of 2015, a growth of over 40% over the previous year.[3] The rapid rise in demand for these products has been accompanied by a call for further research into the various aspects of the product and the market itself.[4-5] Product related issues range from unknown ingredients and their long-term effects, to side effects from usage. Market related issues vary from identifying users and their motivation, to assessing the potential concern that e-cigs serve as a "reverse" gateway introducing non-smokers to tobacco products.

With respect to further research into e-cigarettes, much attention has focused on the product itself and its efficacy in helping smokers quit traditional tobacco cigarettes. In recent years, researchers have begun to address this gap and a few studies have focused on consumer perceptions of e-cigs.[6-9] These studies have produced valuable insight into user profiles, usage patterns, user experience and other issues, such as adoption drivers. However, at the early stages in the life of a new product characterized by tremendous market growth, there is a need to regularly assess both user perceptions and experiences.

Therefore, it is vital to assess current user experiences as the market may have moved along from the innovators, being the first to try a new product, to the early adopters, who are not necessarily keen on being the first to try a new product, but are willing to take some risk if the new offering is seen as an efficient way of helping them to achieve their goals. When compared to the innovators, current users may have different fears and concerns about e-cigs and may also have different expectations. In this study, we assess not only user experiences and motivation to try this new product, but also focus on traditional tobacco cigarette smokers' perceived barriers to switching to e-cigs.

Most of the aforementioned research into consumer perceptions has been survey based, exploring relationships between relevant variables using large samples. A notable exception to this approach was the study conducted at a Midwest Vapers Goup meeting which conducted 15 one-to-one in-depth interviews.[8] Another recent study employed a qualitative approach with 11 focus group participants to compare the effectiveness of nicotine replacement therapies to e-cigs.[10]

As the objective of this study to obtain rich insight into consumer perceptions, we used the focus group methodology and conducted three focus groups with smokers, ex-smokers, and e-cigarette users.

One of the limitations of consumer-focused research on electronic cigarettes has been a tendency to recruit participants from e-cig online forums, offline conventions, or related interest groups. An obvious disadvantage of recruiting from these groups is that participants are less likely to be objective in their assessment of e-cigs. To overcome this limitation, we

recruited participants from a nationally representative sample who met the study's broad criteria.

Study Objectives

Even though the scientific community continues to investigate the long-term effects of nicotine on consumers' health, there is mounting evidence that consumers are finding electronic cigarettes to be effective in helping them reduce or quit smoking traditional cigarettes.[6,9,11] Consumers also believe that e-cigs are cheaper than traditional tobacco cigarettes.[7] A recent study found that awareness levels of e-cigs among U.S. adults has increased to 77.1%.[4] Interestingly, the same study also found that awareness and the perception that e-cigs are less harmful, vis-à-vis traditional tobacco cigarettes, were not associated with smokers' intentions or attempts to quit smoking. One possible explanation for this finding could be that not enough time has elapsed since the introduction of e-cigarettes for consumers to form clear perceptions about them. This may also explain why awareness may not be associated with an intention to quit. However, another possibility is that there may be other barriers and factors that are influencing consumer decisions in this domain.

The main objective of this particular study was to gain insight into the broader smoking population's perceptions of electronic cigarettes and explore the potential barriers they face when switching from traditional tobacco cigarettes to electronic cigarettes. As awareness has rapidly increased in recent years, a secondary objective was to gain understanding of consumers' views about e-cigs and impending government regulation.

Methods

Study design

A qualitative study was conducted using focus group methodology. Three separate focus groups were employed to gain insight into smokers' perceptions of e-cigs, any social, cultural, physiological, or behavioral barriers to switching to e-cigs, and their views about possible regulation and its impact on their decision to continue or quit their current product.

Recruitment and Sample

Recently, researchers have articulated the need for more broad-based research and suggested that including only e-cig users was a limitation as it excluded the views of those who found the product disappointing.[4, 11] As we were interested in identifying barriers to switching to e-cigs, it was important that our sample include smokers who had "ever tried e-cigs and did not switch" to smokers who had "switched to using only e-cigs."

Focus group participants were selected from the partnering market research firm's nationally representative consumer panel. We identified and contacted smokers from this panel and recruited participants who met the study criteria. Participants were screened in order to create the following target focus group breakdown:

- 1:1 gender ratio,

- 12 dual users (use both traditional tobacco cigarettes and e-cig products),

- 10 ever-tried users (traditional tobacco cigarette smokers who tried e-cigs in 30+ days, but didn't adopt them), and

- 8 e-cig-only users.

It was a deliberate objective to specify fewer "e-cig-only users," who might provide less insight into potential barriers to switching, as it was a group studied extensively in past research. Anticipating difficulties in recruiting such tight smoker/user type criteria, the only other demographic criterion specified that all participants be adults 18+ years of age, preferably representing three age groups: 18-30, 31-45, and 45+ years.

Based upon the aforementioned definitions, the final participant pool was comprised of:

- an equal number of males and females,

- 13 dual users,

- 9 ever-tried users, and

- 8 e-cig only users.

All participants were adults and the number of years they had smoked tobacco cigarettes varied from 10-15 years for most participants, with two who had smoked traditional cigarettes for over 50 years. Participants read and signed a consent form before participating. A local University Institutional Review Board approved the study.

Data Collection

The focus group sessions were held in May and June 2014. One of the investigators served as the moderator asking how participants began smoking traditional cigarettes, their feelings about smoking, their initial exposure and reactions to electronic cigarettes, their motivation and reactions to the trial, perceived barriers to switching, as well as other social, behavioral, and perceptual issues associated with using e-cigs.

Each session lasted around 90 minutes and was digitally recorded to enable researchers to verify the accuracy of the notes taken during the focus groups. Personal identifiers of the participants were not included in any of the notes or transcriptions to protect their identity.

Data Analysis

The recordings of the focus group sessions were then reviewed multiple times to identify themes and key insights that emerged from the participants' discussions of the various issues introduced by the moderator. These were then examined by a third party who ratified the findings of the focus group.

Results

The results of the focus groups offer some new insights into commonalities and differences in motivation, perceptions, usage experiences, and switching barriers among the various categories of e-cig consumers.

Motivation for trial

Most participants articulated that they had started smoking traditional cigarettes because it was "cool" or they had access to them at home or school. They were influenced to smoke by someone else: a friend, a family member, and, in the case of the men who were 55+, it was movie stars of the 1950s and 1960s. An interesting finding was that most participants indicated that electronic cigarette advertising did not influence them.

The primary motivation for trying e-cigs, among all of the users in our focus groups, was health related or a desire to quit smoking traditional cigarettes. However, both "dual users" and "ever-tried users" differed in the other motives that drove their switching behaviors.

"Dual users" were also driven by socialization needs; that is, they wanted to "fit in" and e-cigs allowed them to use nicotine without the stigma associated with tobacco smokers. The "ever-tried" users said that they were also influenced by the freedom to "vape" in public places where they are no longer allowed to smoke traditional cigarettes, but were also skeptical about the future of being able to continue to do this in light of potential regulations. We discuss these results in more detail in the conclusions section.

Participants also mentioned two other factors influencing their decision to use e-cigs. The first was economics, as they found that electronic cigarettes were better value with respect to traditional cigarettes. This finding may be relevant to future taxation questions regarding e-cigs and their relative pricing to traditional tobacco cigarettes vs the potential public health benefit. The other factor was odor, as e-cigs left no smell on their clothes, fingers, breath, house, or car. Although these were the reasons given to switch to e-cigs (the temporal sequence in which they described their personal experiences), clearly, these were maintenance factors behind the continued use of e-cigs. As noted below, these maintenance factors may have played a significant role in the rapid growth of the industry thus far.

Usage occasions

Participants reported similar occasions for using electronic cigarettes as they did for traditional tobacco cigarettes, but there were considerably more in-home usage occasions for e-cigs. This observation also applied to the "ever-tried" users. Thus, even those who smoked traditional cigarettes tended to limit their in-home usage occasions; either out of consideration for others living at home or due to self-imposed norms. While participants were aware and abided by vaping policies at work and at public places, many said they used their electronic cigarettes discreetly at work, in restaurants, on airplanes, and in other public places.

Triggers for usage

There were various triggers that caused participants to feel the need to "vape." These included physiological needs (nicotine craving, "puffing" need, and/or oral fixation), behavioral needs (ritual after sex, meals, routine in the morning, long drives, and/or drinking beer), socialization needs (with other traditional cigarette smokers/e-cig users at work and/or at bars/pubs), and psychological needs (stress relief, relaxation, and enjoyment).

Perceptions

Participants were unanimous in their view that e-cigs are a "healthier" alternative to tobacco cigarettes, but were also cautious, as they seemed aware that no conclusive health benefits are yet documented. They also felt that society has a dim view of e-cigs and believed that most people considered e-cigs to be as equally bad as tobacco cigarettes. In fact, most participants said that they had felt judged by others at some point when they had used an e-cig. Some used the word "pariah" to describe their feelings, but when asked to describe a typical e-cig user, most said it could be anyone. In each session, this discussion brought participants together as a group. For example, a common thread emerged around a need to educate the public about e-cigs and how most of them encourage friends who smoke traditional cigarettes to switch.

The sense of community that is engendered among "vapers" has also been noted.[10] However, this study identified the support and encouragement from fellow "vapers" in an online community and information shared by users as instrumental in forming this community. It also identified the positive aspects of socialization (e.g., ability to use e-cigs and hold discussions) as strengthening bonds in the vaping community. Although our research also points to the existence of a strong sense of community among e-cig users, we noted a "negative" social factor not mentioned in prior research that contributes to this sense of community: the disapproval or disdain of others experienced by e-cig users. The difference in our findings from this study may be attributed to the fact that we were not sampling from members of "vaping forums" or other vaping communities.[10] Participants sampled from the larger population of traditional cigarette smokers may find dealing with a negative outcome (being ostracized) as a bigger factor in creating a sense of "we-ness" that is characteristic of communities, especially if many of them have not yet experienced the positive aspects of socialization in an online forum.[12]

Participants liked the various flavors and they differed in their preferences. There were some who liked flavors akin to the traditional tobacco cigarettes they had smoked (e.g., tobacco flavor and menthol), while many others liked novel flavor combinations, ranging from fruit to vanilla to scotch. Some participants indicated a preference for the flavor novelty, while others found a flavor through trial. Those who were using "VTMs" (Vaporizers, Tanks, & Mods) derived some pleasure from the process of finding their ideal flavor in the "right" strength. The discussions also revealed that participants recognized the possibility that flavors might make e-cigs attractive to non-adults.

Perceived barriers for switching

There were differences across the various user categories in terms of what they perceived as barriers to switching from traditional tobacco cigarettes to e-cigs. However, there was one common observation that was expressed by all user categories: Participants mentioned wide quality variation among the available brands of e-cigs. Many spent considerable time, effort, and money in experimenting with different e-cig products until they found a satisfactory "formula" (device and liquid). Participants stated that the quest to find a satisfying e-cig could take several months; evaluating different methods, flavors, and concentrations. There were others who had been unwilling to invest this effort and reverted to smoking traditional cigarettes.

Initial reactions to their first "vaping" experience ranged from "not bad" to "bad," with most having an unsatisfactory trial experience caused by an apparent disconfirmation of their initial expectations. Many expected the experience to be similar to, or exactly like, that of a traditional cigarette, however, the actual experience was not for varying reasons.

"Ever-tried users" said they had never replicated the sensation of traditional cigarettes. They cited sensory differences, such as the haptic feel when the e-cig is held between their fingers. These sensory differences lessened the satisfaction they derived from the "vaping" experience. For this group, these barriers were not overcome by e-cigs' desirable maintenance factors mentioned earlier.

"Dual users" also mentioned shortcomings with their initial experience. A few mentioned a "burning in the throat," while some missed the "drag" or "puff." "E-cig-only users" also mentioned a difference, especially with the first e-cig of the day.

Participants cited one issue as both an advantage and a disadvantage: They felt more committed to smoking a regular cigarette to the end. With an e-cig, it is normal to take a few puffs and store it. Conversely, some could not ascertain a tangible or known endpoint and, as such, they inhale continuously. Participants expressed a desire to quantify nicotine inhalation to be able to stop at some known measured amount.

Perceptions about regulations

Participants had mixed feelings regarding impending government regulation. They were unanimous in their view that e-cigs should not be regulated in the same way as traditional tobacco cigarettes and none of them wanted regulations to limit potential usage locations. This may have been salient to them as regulation in some states restricts vaping certain locations. There was also concern that regulation may require products to pass an approval process, which would raise costs and, in turn, raise prices, thus negating their cost-saving benefit when compared to traditional tobacco cigarettes.

However, participants expressed concern that they were unaware of the ingredients being used in e-cigs and expressed support for regulation requiring ingredient labeling. This was an

interesting twist as the topic of regulation, across all groups, began with strong opposition to the regulation of e-cigs as it was perceived as government interfering with their freedom (i.e., ability to use the product as desired). However, as the discussion moved to safety concerns, many felt there was a role for regulation.

Discussion

The findings from this study offer new insight into smokers' perceptions of e-cigs, their motivation to switch, their concerns, and other perceived barriers to adoption, whilst corroborating certain findings from other prior research.[7, 10-11] The study also found differences between the various categories of users ("dual," "e-cig-only," and "ever-tried") in terms of motivation and barriers to switching. These findings support calls for additional research to explore the differences between the subgroups of traditional tobacco cigarette smokers with respect to e-cig perceptions and experiences. One study called for exploring differences between ex-smokers (e-cig only) and current smokers (dual users), while another suggested examining the differences between non-smokers and traditional tobacco cigarette smokers across all age groups.[6, 13]

Another important direction for future research is the need to be population-based and more inclusive, rather than limited to members of vaping-related groups. A recent study recommended that more population-based research be done to assess traditional tobacco cigarette smokers' beliefs and attitudes toward e-cigs.[4] This study noted a strong community among "vapers." While this finding agrees with earlier studies, the factor contributing to a sense of community among "vapers" articulated by "vaping" interest group-based samples differed from population-based samples.[10]

For our focus groups, a significant barrier for adoption of e-cigs is the product itself. It was surprising to note the amount of effort traditional tobacco cigarette smokers employed to find a satisfying combination of e-cig components. Most traditional tobacco cigarette smoker participants not only found the initial product experience unsatisfactory, but also found the retail salespeople, from whom they purchased the product, to be less knowledgeable, offering little to no helpful advice to develop a more satisfactory experience. Thus, traditional tobacco cigarette smokers, who were new e-cig users, experimented with various products and ingredients to improve their experience. In earlier research, this situation also contributed to a sense of community as users shared advice to improve their experience.[10] It also suggests that new user's have a high level of motivation and desire to find a satisfactory alternative to traditional tobacco cigarettes.

An interesting finding from this study was that, while participants did not generally like the idea of government regulation, their views on this topic were quite nuanced. Contrary to their own dislike of regulation, they supported regulation for labeling ingredients and identifying potentially harmful ones. This concern was amplified due to the wide variance in product quality that they observed in the marketplace.

Conclusion

We conducted a qualitative study with 30 participants in three focus groups that explored a population-based current and former traditional cigarette smoker sample's perception of e-cigs, their motivation, and barriers to switch. The insights from this research point to a need for further research to investigate the differences between various subgroups of users and to extend future studies to include members from a broader population of traditional tobacco cigarette smokers rather than those from e-cig interest groups. It is imperative that, as the product evolves simultaneous to market growth, researchers stay informed about motivators and product expectations that are driving this growth.

Traditional tobacco cigarette smokers who try transitioning to e-cigarettes seek reliable information that can enable them to improve their new experience. They also require ingredient information and expect regulation to be the vehicle to provide it to them. This is amplified by their perceptions of product quality variation in the marketplace.

Traditional tobacco cigarette smokers switching to "vaping" are driven by a desire to become healthier and perceive e-cigarettes as a way to do so while still deriving the same satisfactory experience that they obtained from traditional tobacco cigarettes. The difference between the expected usage experience and the actual experience of e-cigs may vary across different consumer segments.

Future research using broader population-based samples should explore the insights provided by this study. There is merit to performing larger scale quantitative studies that allow more detailed analysis of the differences between various user categories. These studies may enable researchers to better delineate any differences between subgroups in terms of factors that are driving rapid adoption in the market place.

Acknowledgements

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